UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,718	12/14/2001	Hideshi Hattori	CU-2727 RJS	8050

26530 7590 03/24/2005

LADAS & PARRY LLP
224 SOUTH MICHIGAN AVENUE
SUITE 1200
CHICAGO, IL 60604

EXAMINER	
DICUS, TAMRA	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,718	HATTORI, HIDESHI	
	Examiner	Art Unit	
	Tamra L. Dicus	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,12-14,16,18,20 and 22-29* is/are pending in the application.

4a) Of the above claim(s) *22-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,12-14,16,18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 recites the adhesion between the surface of the transparent substrate and fine particles is further made by a reinforcing adhesive means, but the surface of the transparent substrate is adjacent to the polymer electrolyte layer in the claim it depends from. Therefore, the adhesive means cannot be achieved the way claim 5 recites based off its dependency from claim 1, and similarly regarding claim 6.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-6, 12, 14, 16, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,210,787 to Goto et al. in view of USPN 5,976,680 to Ikemori et al. and further in view of USPN 5,880,557 to Endo et al.

Goto teaches an antireflection film comprising: a transparent substrate (transparent polymer film, Abstract, col. 1, line 65-col. 2, line 10), a conductive polymer or metal oxide

conductive layer on the surface of the transparent substrate (col. 4, lines 39-40), and an anti-reflection film on top. An adhesive layer can be on either side of the transparent substrate (col. 3, lines 9-30 and col. 4, lines 13-36) (additional reinforcing adhesive of instant claim 5).

Goto does not teach the conductive polymer layer is of a polymer electrolyte type (instant claim 1) or cross-linked polymer electrolyte (instant claim 4).

Ikemori teaches conductive polymers such as polyacrylic acid or polymethacrylic acid polyelectrolytes (crosslinked polymer electrolytes) that are the base material for an antireflection film applied on a transparent base (col. 1, line 65-col. 2, line 25, col. 3, lines 54-65, and col. 6, lines 1-20) exhibiting properties of non-fogging, insolubleness, wear-resistance, and weatherability.

It would have been obvious to one of ordinary skill in the art to have modified the antireflection film of Goto to include a polyelectrolyte layer because Ikemori teaches polyelectrolyte polyacrylic acid or polymethacrylic acid comprise an antireflection film that exhibits excellent non-fogging, insolubleness, wear-resistance, and weatherability (col. 1, line 65-col. 2, line 25, col. 3, lines 54-65, and col. 6, lines 1-20 of Ikemori).

Goto does not teach a layer of a fine particle layer that is allowed to adhere to the polymer electrolyte film by at least an electrostatic interaction and made from at least a single layer of fine particles, or where the particles have a polarity different form the polarity that the polymer electrolyte has, or where the bulk of the fine particle layer is set to have a refractive index lower than the refractive index of the transparent substrate, or the particle size of fine particles is not more than 300 nm (instant claim 1) or between 50 nm to 300 nm (instant claims

12 and 14), or more than one kind of particle (instant claim 14) or the film thickness of the fine particle layer (instant claim 16).

Endo teaches an antireflection film in this order: a transparent base/ ultrafine particle silica or a transparent base/electric conductive layer/ ultrafine particle silica film. See col. 22, lines 1-15. The ultrafine particle film can be present in two layers instead of one (instant claim 16) (col. 10, lines 55-60) functioning as an electric conductive and anti-reflection layer. The silica ultrafine particles are a mixture of metal oxides and silica (instant claim 14) and have the range of 0.01 – 0.05 microns (10-50 nm), falling in Applicant's range of not more than 300 nm (instant claim 1), and between 50 nm to 300 nm (instant claims 12 and 14). The film thickness of the ultrafine particle layer is between 0.1 to 0.2 microns, where both are not more than 0.3 microns (100-200 nm), falling in applicant's range of 50 to 300 nm (instant claim 16). See col. 11, lines 38-30, col. 14, lines 29-65, and col. 16. Endo teaches a refractive index lower than the refractive index of the transparent substrate (the silica particles have a refractive index of 1.46 and the transparent substrate has a RI of 1.53, see col. 14, line 55-col. 15, line 1 of Endo).

It would have been obvious to one of ordinary skill in the art to have modified the combination of Goto and Ikemori to include a fine particle layer having the refractive index difference as claim 1 recites thereon allowing for electrostatic interaction because Endo teaches the same ultrafine silica particle film on conductive and transparent substrates exhibiting antistatic, anti-refleciton or infrared-reflection functionalities (col. 6, lines 35-40 of Endo) and the refractive index differences are present to decrease scattered light (col. 6, lines 60-68, col. 11, lines 38-30, col. 14, lines 29-65, and col. 16. of Endo). Also, it would have been obvious to one of ordinary skill in the art to have modified Goto and Ikemori to include a film thickness as claim

16 requires because Endo teaches the layer thickness is conventional and selecting a range of 1 to 50 nm is optimizable as thickness effects the strength. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

While Endo, Ikemori, and Goto do not teach the polarity difference and electrostatic interaction, such properties are inherently expected because the same materials are used.

Regarding claim 3, the combination does not teach the polymer electrolyte film is a multilayered film made of not less than two kinds of polymer electrolytes and the polarity is different.

Because Ikemori already teaches suitable polyelectrolytes such as polyacrylic acid, polymethacrylic acid, polyacrylaminde and their salts at col. 3, lines 54-60 and teaches they are in a multilayer film (col. 6, lines 3-5) to vary the refractive index, it would have been obvious to one having ordinary skill in the art to have picked from the more than 3 selective polyelectrolytes in order to vary the refractive index when in a multilayer film as Ikemori teaches.

Because claim 5 is not clear, it is interpreted two ways as noted below:

Regarding claims 5-6, the further adhesive means or the means of irreversibly coupling and fusing, between the substrate and the fine particle layer is not taught by the combination.

Endo teaches an adhesive means such as heat treatment solution of SiORx and coupling agent works as an adhesive between the ultrafine particles and base (col. 16, lines 35-61).

It would have been obvious to one of ordinary skill in the art to have modified the film of the conbination to further include adhesive means and means of irreversibly coupling and fusing

between the base and the polyelectrolyte because Endo teaches adhesion strength can further be improved (col. 16, lines 35-61 of Endo).

Regarding claims 5, the further adhesive means between the substrate and the polyelectrolyte layer is not taught by Goto.

Ikemori teaches adhesion strength is improved between the base and polyelectrolyte antireflection film as an undercoat (col. 6, line 29-35).

It would have been obvious to one of ordinary skill in the art to have modified the film of Goto to further include adhesive means between the base and the polyelectrolyte because Ikemori teaches adhesion strength can further be improved (col. 6, line 29-35 of Ikemori).

The cited prior art does not teach the volume % from 10 to 90% (instant claim 18).

Endo teaches at least 10%, falling within Applicant's range (col. 8, lines 10-12).

It would have been obvious to one of ordinary skill in the art to have modified the combination to have included a volume % as recited, because Endo teaches 10% is a conventional percentage that effects the anti-refection function (col. 8, lines 10-15 of Endo).

The cited prior art does not teach the refractive index in a range of 1.05 to 1.70 (instant claim 20).

Endo teaches at col. 25, lines 1-10, the refractive index is 1.44, 1.42, 1.53, all of which are within Applicant's range.

It would have been obvious to one of ordinary skill in the art to have modified the combination to have included a RI as recited, because Endo teaches such values are conventional effecting the anti-refection function (col. 25, lines 1-10 of Endo).

Response to Arguments

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamra L. Dicus
Examiner
Art Unit 1774

3/10/05

RENA DYE
SUPERVISORY PATENT EXAMINER
3/21/05
A.U. 1774